

Appl. No. 09/701,791
Amdt. Dated 12/10/2004
Response to Office action dated 06/16/2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A method of manufacturing chemically prestressed components which comprises molding concretes formed by kneading a cement composition containing a cement and an expansive additive and curing the same underwater in a high temperature high pressure curing water at over 100°C.

Claim 2 (Previously presented): A high temperature high pressure underwater curing apparatus for concrete molding products in high temperature high pressure curing water sealed in a pressure resistant vessel comprising a plurality of openable/closable pressure resistant vessels for containing concrete molding products, each of the pressure resistance vessels comprising:

a curing water supply device for supplying water or warmed water as curing water to the inside of the vessel;

a pressurized air supply device for supplying pressurized air to the inside of the vessel thereby pressurizing the inside curing water;

a heater for heating the curing water supplied to the inside of the vessel and maintaining the same at a predetermined temperature; and

a deaeration valve disposed to an upper portion of the vessel for opening the inside to atmospheric air, wherein

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a transfer pipe is disposed to a lower portion of each vessel being connected to an optional portion of other pressure resistant vessel for delivering curing water in communication with other pressure resistant vessel by way of an ON/OFF valve,

a transfer pipe is disposed to the optional portion of each vessel being connected to the lower portion of other pressure resistant vessel and receiving curing water in communication with the other pressure resistant vessel by way of an ON/OFF valve, and

the respective pressure resistant vessels are connected by the two transfer pipes so as to form a circulation channel to each other.

Claim 3 (Previously presented): A high temperature high pressure underwater curing apparatus for concrete molding products as claimed in claim 2, wherein the transfer pipe on the receiving side for the curing water is disposed being situated to an upper portion of each pressure resistant vessel.

Claim 7 (Previously presented): A method of curing concrete molding products using a high temperature high pressure underwater curing apparatus comprising:

a curing step of filling the inside of a pressure resistant vessel with curing water, keeping the curing water at a predetermined high temperature by a heater and supplying pressurized air from the a pressurized air supply device to put the inside of the pressure resistant vessel to a high pressure and curing concrete molding products contained in the vessel for a predetermined period of time;

a transfer step for curing water of opening an ON/OFF valve of a transfer pipe on the delivery side of the pressure resistant vessel, transferring high temperature high pressure curing water filled inside the pressure resistant vessel through the transfer pipe on the delivery side to other pressure

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resistant vessel and closing the ON/OFF valve of the transfer pipe on the delivery side after the completion of transfer of the curing water, wherein the transfer pipe is disposed to a lower portion of each vessel being connected to an optional portion of other pressure resistant vessel for delivering curing water, the transfer pipe is disposed to the optional portion of each vessel being connected to the lower portion of other pressure resistant vessel for receiving curing water; and

a stand-by step of taking out the concrete molding products after curing from the inside after the completion of the transfer step, replacing the same with concrete molding products before curing and waiting for reception of curing water from other pressure resistant vessel, in which

each of the steps is repeated successively being shifted on each of the pressure resistant vessels and concrete molding products are cured while transferring the curing water to a plurality of the pressure resistant vessels connected so as to form a circulation channel.

Claim 8 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus as claimed in claim 7, wherein the inside of the other pressure resistant vessel is opened to atmospheric air by a deaeration valve in the transfer step for curing water.

Claim 9 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus as claimed in claim 8, wherein pressurized air is supplied from the pressurized air supply device of the pressure resistant vessel in which the curing step has been completed and curing water remaining inside is forcedly transferred to the other pressure resistant vessel.

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Claim 10 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus as claimed in claim 7, wherein pressurized air is supplied from the pressurized air supply device of the pressure resistant vessel in which the curing step has been completed and curing water remaining inside is forcedly transferred to the other pressure resistant vessel.

Claim 11 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus comprising:

a curing step of filling the inside of a pressure resistant vessel with curing water, keeping the curing water at a predetermined high temperature by a heater and supplying pressurized air from a pressurized air supply device to put the inside of the pressure resistant vessel to a high pressure and curing concrete molding products contained in the vessel for a predetermined period of time;

a transfer step for curing water of opening an ON/OFF valve of a transfer pipe on the delivery side of the pressure resistant vessel, transferring high temperature high pressure curing water filled inside the pressure resistant vessel through the transfer pipe on the delivery side to other pressure resistant vessel and closing the ON/OFF valve of the transfer pipe on the delivery side after the completion of transfer of the curing water, wherein the transfer pipe is disposed to a lower portion of each vessel being connected to an optional portion of other pressure resistant vessel for delivering curing water, the transfer pipe is disposed to the optional portion of each vessel being connected to the lower portion of other pressure resistant vessel for receiving curing water, and

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a stand-by step of taking out the concrete molding products after curing from the inside after the completion of the transfer step, replacing the same with concrete molding products before curing and waiting for reception of curing water from other pressure resistant vessel, in which

each of the steps is repeated successively being shifted on each of the pressure resistant vessels and concrete molding products are cured while transferring the curing water to a plurality of the pressure resistant vessels connected so as to form a circulation channel.

Claim 12 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus as claimed in claim 11, wherein the inside of the other pressure resistant vessel is opened to atmospheric air by a deaeration valve in the transfer step for the curing water.

Claim 13 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus as claimed in claim 12, wherein pressurized air is supplied from the pressurized air supply device of the pressure resistant vessel in which the curing step has been completed and curing water remaining inside is forcedly transferred to the other pressure resistant vessel.

Claim 14 (Previously presented): A method of curing concrete molding products using the high temperature high pressure underwater curing apparatus as claimed in claim 11, wherein pressurized air is supplied from the pressurized air supply device of the pressure resistant vessel in which the

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curing step has been completed and curing water remaining inside is forcedly transferred to the other pressure resistant vessel.

Claim 15 (Previously presented): A high temperature high pressure underwater curing apparatus comprising:

a plurality of pressure resistant vessels, each of the plurality of pressure resistant vessels comprising

a curing water supply device,

a heater,

a deaeration valve,

a first transfer pipe disposed to a lower portion of each vessel in communication with other pressure resistant vessel for delivering curing water,

a second transfer pipe in communication with the lower portion of other pressure resistant vessel for receiving curing water, the first transfer pipe and the second transfer pipe forming a circulation channel between the respective pressure resistant vessels.

Claim 16 (Previously presented): A method of curing concrete molding products using a high temperature high pressure underwater curing apparatus comprising:

filling a pressure resistant vessel of a plurality of pressure resistant vessels with curing water

supplying pressurized air to the pressurized resistant vessel

curing a concrete molding product contained in the pressure resistant vessel

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transferring high temperature high pressure curing water through from the pressure resistant vessel through a circulation channel formed by a transfer pipe included with each of the pressure resistant vessels to other pressure resistant vessel

removing the concrete molding product after completion of the transferring

successively repeating the filing, the supplying, the curing, the transferring, and the removing in each of the pressure resistant vessels to cure concrete molding products while transferring the curing water between pressure resistant vessels via the circulation channel.